

**AMENDMENTS TO THE SPECIFICATION:**

On page 1, after the title and before line 1, please add the following paragraph:

[000] This application is a national stage filing under 35 U.S.C. § 371 of International Application No. PCT/EP2002/09671, filed on August 30, 2002, which published in the English language.

Page 1, please amend the paragraph beginning at line 18, as follows:

[002] In today's commercial world, software applications render a lot of business processes very convenient. One of these business processes, for example, is the process of billing, i.e., the creation of bills for services rendered and/or goods delivered. In order to facilitate and automate the billing process, software applications exist that enable the user of such a software application to create bills on the basis of a data input to the system on which the software is run. However, instead of inputting the data into the system, it would be much more convenient to be able to use data that already exists in the business software of the user, i.e., data relating to a certain order of a certain client. Although such billing software applications that automatically retrieve relevant data from the business application exist, the existing applications are especially conceived for specific business applications and for specific billing needs, leading to a divergence in the area of billings software applications. ~~However, in~~ In today's global business world, it ~~becomes more and more~~ is important for a company to be able to react and adapt quickly to new business models and improve customer services to compete effectively. Therefore, there is a ~~requirement~~ need for modern billing processes ~~as to system openness, flexibility, and~~ that are open, flexible, and that

support good customer ~~relation~~ relations that cannot be met with the existing billing software applications.

Page 2, please amend the paragraph beginning at line 14, as follows:

[003] ~~It is therefore an object~~ Embodiments of the present invention ~~to provide~~  
~~for a systems~~ and ~~a methods~~ which ~~permit to~~ overcome the one or more drawbacks of  
existing business software applications.

Page 2, please amend the paragraph beginning at line 18, as follows:

[004] ~~[[The]]~~ Embodiments of the present invention ~~provides~~ provide a business  
engine application generation system for automatically generating a business software  
application which allows ~~to generate~~ generation of a customized business application on  
the basis of a predefined set of meta data provided in a repository of the system  
~~according to the invention.~~ ~~[[Said]]~~ The set of predefined meta data contains structured  
information relating to business processes, ~~the predefined meta data being~~ and is  
adaptable via input/output means to the specific needs of the applications to be  
generated. Particularly, the set of meta data is adaptable ~~[[as]]~~ to ~~[[the]]~~ a business  
solution providing the customer and business process data ~~but also~~ and to specific  
business process requirements, such as customer requirements.

Page 2, please amend the paragraph beginning at line 33, as follows:

[005] ~~According to the invention, this~~ This is achieved by using a generation tool which, on the basis of the set of meta data, generates a customized application which is called a business engine application.

Page 3, please amend the paragraph beginning at line 3, as follows:

[006] This business engine application enables a user to group, price, and merge data from all source applications into a single invoice or item. The business engine application can output invoices, etc. in various media such as printer, fax, e-mail, or external output management systems, and particularly to various accounting applications. Because of its flexible architecture, ~~the system according to~~ embodiments of the invention helps to may adapt quickly to new business models, such as the billing of product bundles from various industry sectors or invoicing for third-party services. ~~A big advantage~~ Embodiments of the invention ~~is that it enables to~~ may also enable ~~generate the generation of~~ a business application tailored to meet specific business needs~~[[, the]]~~ and having options ~~[[being]]~~ that are quickly and easily changeable.

Page 3, please amend the paragraph beginning at line 18, as follows:

[007] Advantageously, in one embodiment, the generation tool comprises a first generator and a second generator~~[[, said]]~~. The first generator ~~[[being]]~~ comprises a meta data dependent generator and ~~[[said]]~~ the second generator ~~having~~ comprises a meta data independent generator. For each generation relevant object, the first generator contains a function group and the second generator contains a function.

Page 3, please amend the paragraph beginning at line 25, as follows:

[008] The set of meta data according to embodiments of the invention ~~consists of~~ may comprise data base tables containing meta data entities. These entities contain information on the identification of an application to be generated, on object types and on object structures. Thus, the meta data ~~of the repository~~ are structured into entities, ~~the entities containing~~ that contain attributes describing concrete or abstract unities of a data model forming the basis for the generation process.

Page 4, please amend the paragraph beginning at line 1, as follows:

[009] ~~The system~~ Systems according to embodiments of the invention further ~~[[comprises]]~~ comprise as input/output means a workbench which enables a user treatment, i.e., viewing, creating, adding, deleting, changing, inheriting, editing, etc., of the meta data of the repository, ~~i.e. the viewing, creating, adding, deleting, changing, inheriting, editing etc. said meta data.~~ The workbench also enables a user to invoke or start the generation process which is done by initiating an import of meta data into the generation tool, and more precisely into the first generator of the generation tool.

Page 4, please amend the paragraph beginning at line 11, as follows:

[010] In the generation process according to embodiments of the invention, the generation tool generates a customized business software application on the basis of meta data altered by a user in view of specific needs, by joining function groups

generated by the first generator with functions and code generated by the second generator.

Page 4, please amend the paragraph beginning at line 17, as follows:

[011] Thus, embodiments of the invention ~~provides for~~ may provide a business application generation system for automatically generating a business software application ~~which constitutes~~ using a convergent approach ~~[[as it]]~~ that is able to process business process data from various source applications, thus “converging” different business process streams, and meeting company-specific, industry-specific, country-specific and tax-specific requirements.

Page 4, please amend the paragraph beginning at line 26, as follows:

[012] ~~[[The]]~~ Embodiments of the invention further ~~provides for~~ provide a business application generation which enables a user to automatically adapt a business software application to different needs and requirements by automatically generating an adapted business application software. ~~Thus, the invention~~ This makes it possible that not only to generate a customized business software application ~~is not only generated automatically but also adapted, amended or altered~~ but also to automatically adapt, amend or alter the business software application according to changing requirements after a certain time. This is achieved by providing a set of meta data which can be customized by a user via input/output means such as a workbench and by processing ~~[[said]]~~ the set of meta data through a generation tool according to ~~[[the]]~~ various teachings of the invention.

Page 5, please amend the paragraph beginning at line 6, as follows:

[013] Still further, embodiments of the invention ~~provides~~ provide for computer program products comprising instructions to cause a processor to execute steps for generating business software applications and ~~[[adapt]]~~ adapting business software applications, ~~respectively, the computer program products comprising instructions to cause a processor of a computer to execute the steps according to the invention as described in more detail below.~~

Page 5, please amend the paragraph beginning at line 16, as follows:

[014] The detailed description will refer to the following ~~drawings~~ figures in which like reference numerals refer to like objects. It ~~[[is]]~~ should be understood that the description is in no way ~~limitative~~ limiting to the scope of the present invention and is merely an illustration of a preferred embodiment of the invention. Also, the described combination of ~~[[the]]~~ features of the invention ~~[[is]]~~ should not be understood as a limitation, and all the features can be combined in other ~~constellations~~ arrangements without departing from the spirit of the invention. In the drawings~~[[,]]~~:

Page 5, please amend the paragraph beginning at line 28, as follows:

Figure 1 is a schematic view of ~~[[a]]~~ an exemplary business application generation system, according to an embodiment of the invention.

Page 5, please amend the paragraph beginning at line 32, as follows:

Figure 2 is a schematic block diagram of the structure of ~~[[the]]~~ an exemplary business application generation system, according to an embodiment of the invention.

Page 6, please amend the paragraph beginning at line 1, as follows:

Figure 3 is a ~~flowchart depicting the~~ flow chart depicting an exemplary method for generating a business software application, according to an embodiment of the invention.

Page 6, please amend the paragraph at line 8, as follows:

[015] Figure 1 shows a business application generation system 10 for automatically generating a business software application or an adapted business software application, respectively, according to an embodiment of the present invention. Computer system 10 comprises a server 12 with a central processing unit 14, an interface 16 for connection with at least one client means 18, the client means, advantageously comprising a monitor 24, a keyboard 26 and cursor control means (mouse or trackball) 28. The computer system 10 further comprises at least one data base means or repository 20 containing a set of meta data as well as a generation tool 22.

Page 6, please amend the paragraph at line 21, as follows:

[016] Referring now to Figure 2, the structure of ~~[[the]]~~ an exemplary business application generation system according to an embodiment of the invention is described in more detail. The business application generation system comprises ~~[[said]]~~ interface

16, ~~[[said]]~~ generation tool 22 and repository 20. ~~In the preferred embodiment~~  
According to one embodiment of the invention as described herein below, the interface 16 ~~advantageously~~ is a workbench module which enables a user of the system to treat meta data contained in the repository 20 via input/output means 18~~[[, i.e]]~~. That is, the workbench module 16 constitutes the interface between the system 10 ~~according to the invention~~ and a user, the user acting on the workbench 16 via hardware input/output means 18.

Page 7, please amend the paragraph beginning at line 1, as follows:

[017] The generation tool 22 ~~preferably consists of~~ comprises a first tool and a second tool, the first tool being a passer element 30 which is dependent on the meta data contained in the repository 20 and the second tool being a generating element 32 which is independent of the meta data contained in the repository 20.

Page 7, please amend the paragraph beginning at line 7, as follows:

[018] The repository 20 contains, as already mentioned above, a set of meta data containing structured information on the business process which is the object of the software application to be generated. For example, the meta data contains structured information describing the structure of the business software application to be generated and which is considered upon automatic generation of the software application. By means of example only, the meta data may contain such information as data base tables and according structural definitions and table types for processing purposes, object type descriptions, function descriptions and function group



descriptions, feature attributes (which may be used in templates) as well as information relating to client oriented base data and customized data, and flexible interface data, the latter enabling the generation of a software application that might be used in an open application or system environment.

Page 7, please amend the paragraph beginning at line 26, as follows:

[019] The arrows depicted in the block diagram of Figure 2 indicate the way certain modules ~~of the invention make use of~~ interact with certain other modules. ~~[[Via]]~~ Using workbench 16, a user can access the meta data contained in repository 20 in order to treat the meta data. ~~[[By the]]~~ The term "treat" is used in the context of this ~~invention,~~ description to indicate any kind of viewing, creating, adding, deleting, changing, inheriting, adding, etc. of the repository meta data ~~is to be understood~~. As a consequence, a user is able to adapt or customize the meta data according to his needs. In order to simplify this task as much as possible, the workbench module 16 comprises an interface ~~surfaces~~ providing a treatment of the meta data ~~[[via]]~~ using easy to handle drag and drop techniques.

Page 8, please amend the paragraph beginning at line 6, as follows:

[020] ~~[[Via]]~~ Using workbench 16, the user also invokes the generation tool 22. ~~Preferably,~~ According to one embodiment, invocation of the generation tool 22 is started by initiating an import of a customized set of meta data from the repository 20 into the passer element 30 of the generation tool 22.

Page 8, please amend the paragraph beginning at line 11, as follows:

[021] In the passer element 30, the imported customized meta data is processed for further input into the generating element 32. ~~[[By]] In the context of this description, the term "process" in the context of this invention, is used to indicate any kind of handling, interpreting, preparing and conditioning of data is to be understood.~~ In other words the passer element 30 gathers all the data and information that is needed by the generating element 32, interprets the semantical content of the meta data and ~~translate~~ translates the same into the technical information required by the generating element, and passes the result of the data processing as described on to the generating element 32.

Page 8, please amend the paragraph beginning at line 23, as follows:

[[22]] [022] Referring now to Figure 3, a method for generating a business software application according to one embodiment of the invention is described in more detail. Figure 3 shows a flowchart illustrating the exemplary method of generating a business application in which, at 40, a set of meta data is provided~~[[, the]].~~ The set of meta data ~~containing~~ contains information on the business process data to be processed by the application to be generated and on functions operating on ~~[[said]]~~ the business process data. In ~~a preferred~~ one embodiment of the invention, the business process which is an object of the software application to be generated is a billing process.

Page 9, please amend the paragraph beginning at line 1, as follows:

[[23]] [023] If necessary, the set of meta data can be customized by a user via an input/output means, ~~which is depicted at step 42. As a next step, at~~ At step 44, the meta data is imported into a generation tool, ~~followed by a step of treating the.~~ The meta data is treated at step 46, i.e. the. That is, the meta data is interpreted, translated and processed into technical information data. ~~This is preferably performed~~ According to one embodiment, the treatment of the meta data is performed by a first tool of the generation tool which is a so called passer element. The passer element [[then]] inputs the processed data into a generating element of the generation tool at 48. ~~Finally, the~~ The generating element generates a software application on the basis of the inputted data at step 50.

Page 9, please amend the paragraph beginning at line 14, as follows:

[[24]] [024] The step of generating the business software application depicted at 50 can ~~either~~ be the generation of a new business process application or it can be the generation of an adapted or amended version of an existing business process application. The latter is achieved, for example, when a user or client continually maintains [[and]], updates, and amends the set of meta data stored in the repository of the system 10 ~~according to the invention~~ in order to be able to create new versions of his business process application by running the method ~~according to the present invention.~~ of Figure 3. For example, if a new client requirement arises, ~~which could be~~ for example introduction of bundle billing in a business billing process, and this new requirement is not yet provided by the user's billing application, embodiments of the

present invention may enable the user ~~[[might]] to~~ amend the set of meta data to include provisions for bundle billing ~~and then,~~ Then, by re-running the method ~~and software~~ ~~according to the invention,~~ of Figure 3, the user can generate an updated version of the office billing application which includes a bundle billing process.

Page 10, please amend the paragraph beginning at line 1, as follows:

[[25]] [025] Thus, the ~~invention provides~~ various embodiments of the invention provide a novel and advantageous business application generation system comprising a set of tools ~~by means of~~ which a user is able to use to create and adapt business software applications. This is achieved by providing a set of meta data which contains data, templates, allocation and name tables, etc. to generate a software application supporting business processes which can preferably be run in existing software environments. ~~It is an advantage of the invention that, due~~ Due to the semantic information contained in the set of meta data, a user can generate a software application which is readily integrated in existing software environment. By customizing the set of meta data, it is possible to add customer specific fields to interfaces ~~[[an]]~~ and database tables and define customer specific requirements such as selections for a billing due list and billing documents.

Page 10, please insert the following paragraph after line 18 as follows:

[026] Other embodiments of the invention will be apparent to those skilled in the art from consideration of the specification and practice of the embodiments of the invention disclosed herein. It is intended, therefore, that the specification and examples

be considered as exemplary only, with a true scope and spirit of the invention being indicated by the following claims.